PHELPS' METHOD FOR THE CURE OF CLUB-FOOT IN ADULTS.*

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I do not presume to present any radically new points regarding the usefulness of Phelps' operation, especially to this Association, as I feel that the members of this organization are well grounded in the elements of the treatment of club-foot; yet I do believe that I can present some experience which may be of use to the general practitioner and the surgeon, whom we know have widely different opinions on the subject of the treatment of this affection.

Even this Association is not united in declaring for any given method of treating club-foot. Our ex-President, Dr. Steele, in his address, last year, called attention to this by the remark, that, "if one simple plan of treating club-foot was always successful there would not be such a variety of methods suggested." Let me further illustrate this diversity of opinion: In the Surgical Section of the Mississippi Valley Medical Association at their last meeting (October, 1893), a surgeon of some prominence presented for the consideration of the Section, and advocated strongly, his new operation for the cure of inveterate club-foot, which was a modified Chopart amputation. He claimed that in many of these cases he had failed to cure by all methods available, and further believed that this operation would give the best walking extremity obtainable.

This is certainly an extreme view. The opposite extreme opinion was presented, in the discussion which followed, by a gentleman holding the chair of general surgery in one of our Western

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colleges, who claimed that in his experience he had never seen a case requiring a cutting operation of any kind, but that he had deemed mechanical force under an anaesthetic plus the use of braces all-sufficient.

I therefore feel that any experience which will tend to establish an operation between the above extremes, which shall be satisfactory to the general profession in a given class of cases, is reason enough for its being recited.

As to the question of Chopart operation or any modification of it for the relief of club-foot, I stated then, as I hold today, namely, that any amputation of a part of the foot for the relief of this condition is a stigma to surgery. The operation is not deserving of serious thought. In regard to the other extreme view, viz., that of attempting to cure all cases of club-foot by mechanical force (say tarsoclast) under an anesthetic, I would say that I have had some unfortunate experience, which has led me to avoid in certain cases carrying it to that extreme which is necessary in order to correct the deformity by this method alone.

Case I.—Oliver F. M., ten years old, with double congenital equino-varus, dislocation of left hip and imperfect action at both shoulders (the latisimus dorsi of both sides being short); also creaking motions at knee-joints; boy somewhat anæmic, circulation not very vigorous. Operated for cure of deformity of hand and both feet. I cut both tendines Achillis subcutaneously and fascia of sole of feet; also astragalo-scapdoid ligament. Used the Thomas tarsoclast with considerable force, finally getting the feet into good position, as shown by my notes in case-book. I saw the patient two hours after the operation, when the circulation had returned to all toes except great toe of the left foot. I gave orders to the house doctor that if the circulation did not return in a short time to cut down on the plaster dressing and relieve the tension. Two hours later (9 P. M.) I telephoned to the hospital, and was informed that

the circulation had returned nicely to the great toe in question. I now think that that this was an incorrect report carelessly made. At 8 o'clock the next morning I was called by telephone to come immediately to the hospital, as patient's foot was in a bad condition. I immediately went to see him and found the toe of a dark-bluish color, the second toe in nearly the same condition, and on removing the plaster found a bleb on the inside of the arch of the foot two inches in width and nearly four inches long. At the position of this bleb sloughing subsequently took place. The lateral ligament of the great toe sloughed away, the tendon of the extensor proprius pollicis was exposed for about an inch, and also the bone at one or two points. The casting off of the slough and the suppurative process were very slow, keeping the boy confined to the house an extra month and a half. From the loss of the lateral ligament the toe was drawn out of position and an amputation of the toe was done. Ultimately I got a good result, the feet being perfectly straight, the boy walking very well. It is possible that had the plaster been removed the same evening of the operation the slough might not have taken place. Quite certain I am that had I followed the suggestion of our worthy President, with whom I discussed this case at our meeting in New York, and who advised the open incision, no such accident would have followed.

Case II. (About six months after operating on Case I.)—Emma W., aged forty-four years, came to me for treatment. She was a maiden lady of marked subnormal cerebration, under size, being only about four and one-half feet tall, weighing probably about ninety pounds. She was anaemic, being about as colorless as anyone I have ever seen. Her hands were delicate and no larger than those of a child eight or ten years old. She had right equinus and left equino-varus from infantile paralysis. Being rather an unpromising subject I did not urge the operation, but spoke rather discouragingly of the possible outcome. But she declared that she

had made up her mind to have an operation, no matter what happened. I soon saw that she had a strong will if not backed by good judgment. Under an anesthetic I cut the tendo Achillis of left foot subcutaneously, also the fascia of sole, then by the Thomas torsoclast wrenched the foot into good shape, carrying it over as far as I desired, then put it up in plaster. I will here remark that her foot was as pliable as that of a child six years old or younger, and was carried into a position of valgus by the tarsoclast without the use of extreme force. Having had the former unpleasant experience and this being an unpromising case, I determined to watch the foot carefully myself. Soon the circulation seemed fairly good except in the great toe. In a little over an hour, finding that it still did not return in this toe, I cut through the plaster and sprung it apart. Two hours later, still finding imperfect circulation, I took off the plaster entirely. Even then the circulation of the skin did not not return over a large area on the inside of foot, toe and heel. I am convinced that in this case the sloughing was due to the stretching of the skin pure and simple. This is proven by sloughing taking place on the heel where there was no pressure whatever either by tarsoclast or plaster-of-paris. Had I done the open-incision operation in this case, as I certainly would do now, I feel reasonably sure that healing would have taken place in a month to six weeks instead of having to wait for the tedious healing of an extensive slough.

In contrast to the above-mentioned case, I desire to report Phelps' operation on a girl nearly nineteen years old.

Case III.—Addie P., aged nineteen years, of Pottsville, Pa. Double congenital equino-varus. When a few months old an operation was performed on both feet; she wore braces until the age of five years. Both feet were still badly deformed. She was then taken to Buffalo and again had both feet operated upon without much improvement. At home, by the use of braces, massage,

manual force, and plaster, the left foot was nearly cured, and there only remained at the time of my examination some shortening of tendo Achillis which permitted the foot to flex to just a right angle. The patient was satisfied with this foot, and only wished for correction of deformity of the other (right) foot. The right foot could not be flexed to less than 110°; there was marked cavus and varus of moderate severity. Under an anesthetic I cut the tendo Achillis subcutaneously, and after some minutes' trial found that I could not get the heel down, so I made an open incision over the tendon, cutting as much of the posterior heel ligament as I could reach, inserting the blade of the knife over an inch below the level of the skin. Considerable hemorrhage followed the last deep cut, and for a time I thought I had severed the posterior tibial artery, but by packing the wound the hemorrhage was soon stopped, and from the lack at any time of interference in the circulation of the foot I was led to believe that it was the internal calcanean, which I think I have cut on several occasions. Having gotten the heel down satisfactorily I made the open incision from a point about an inch in front of the anterior part of the inner malleolus straight downward to about half across the sole of the foot; cut through everything, including astragalo-scaphoid ligament. I then applied the wrench; but with all the power I could use was unable to get the foot into satisfactory position, so again applied the knife, cutting more ligamentous tissue. On a second application of the tarsocrast I was able to bring the foot into entirely satisfactory position ; the wound gaped about an inch and was lightly packed with gauze and the foot fixed in plaster-of-paris. Wound filled slowly but perfectly. She wore a brace about four months as a precaution, but I hardly think that it was necessary. May 18, 1894, I received a photograph and a letter saying that the foot is perfectly straight, that she wears the same sized shoe as on the other foot, that she can walk a long distance without tiring, and that there

is no disposition for the foot to turn in. In other words, it is about as nearly a perfect result as one would wish, and this in a young lady nineteen years old.

Case IV.—Two years and a half ago I removed a wedge formed of parts of the os calcis and cuboid, after finding that I could not straighten by tentomies and tarsoclasis in the case of a girl about twelve years old, upon whom six previous operations (tenotomies) had been performed by three different surgeons. I got a perfect result as far as position of the foot is concerned, and the girl walks without limp; but we have here, as after all operations where a wedge is removed, a foot somewhat smaller than the other one; and there is also some flat-foot existing. This is another case in which I would now make an open incision.

The question now arising in the discussion of this problem is, What are the possibilities of the open incision plus other more radical measures in adult club-feet? My belief in the matter is, viz., that by tenotomies, the open incision, the removal of a tarsal wedge, and the removal, sometimes, of the astragalus, the feet in the worst cases will be brought to the front; not that the feet in the severer forms found in adults will be perfect, but, though lacking much motion at the ankle, and the elasticity and form of the arch being gone, and perhaps somewhat misshapen, yet will they be so much superior to the condition in which we find them that the propriety of the above described operation cannot be questioned.

To the assertion that Chopart's amputation is indicated, I venture to say that but few if any will assent; and I dare say that none will claim that tenotomies with tarsoclasis will cure the worst cases.

Conclusion.—From my experience and observation I am led to draw the following conclusions: The skin in the case of some adults and older children will not stand the amount of stretching necessary to bring the foot into good position, but sloughing will

take place. Therefore in these cases tenotomies and tarsoclasis will be unsatisfactory, though sufficient to correct the deformity.

Tenotomy of the tendo Achillis, and in some cases section of the heel ligaments, the open incision on the concave side of the foot and the use of tarsoclasis will cure many of these adult club-feet. In the worst cases, in addition to the above, removal of a tarsal wedge or the removal of the astragalus, or both, may be required before the deformity can be overcome.